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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,394	03/26/2004	Hoon Kang	053785-5181	7576

9629 7590 02/22/2007
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EXAMINER

VU, PHU

ART UNIT	PAPER NUMBER
2871	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/809,394

Applicant(s)

KANG ET AL.

Examiner

Phu Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 12-14 and 38-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 15-37, 41 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Applicant's arguments with respect to claims 1-11, 15-37, 41, and 42 have been considered but are moot in view of the new ground(s) of rejection. Two alternative interpretations of the amendment are addressed below the first considering the limitation of a selective transmission directly on a face of a substrate that permits use of an element to attach (ie. adhesive) the other does not.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8, 15, 20-27, 29-32, 34 and 41-42 are rejected under 35 U.S.C.

103(a) as being unpatentable over Akiyama US 6542208 in view of Okamoto 2002357825.

Regarding claims 1, 3, 15, 27 and 29, Akiyama teaches a dual display mode liquid crystal display device and method of forming, comprising: first and second substrates (fig. 5 elements 3 and 12) spaced apart from and facing each other; a first transparent electrode (4) on an inner surface of the first substrate; a second transparent electrode (5) on an inner surface of the second substrate; a liquid crystal layer (6) between the first and second transparent electrodes; a first polarizer on an outer surface of the first substrate, the first polarizer (10) having a first light transmission axis; a front light unit on an outer surface of the first polarizer; a selective

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reflection/transmission part (9) on an outer surface of the second substrate, the selective reflection/transmission part selectively reflecting linearly polarized light corresponding to the first light transmission axis; and a second polarizer on an outer surface of the selective reflection/transmission part (11). The reference also teaches the selective reflection/transmission part sandwiched by the second substrate and second polarizer.

Regarding the limitation of the selective reflection/transmission section being attached directly to the substrate Akiyama discloses that the selective transmission/reflection part (9) is attached to the substrate through an adhesive scatterer (see column 8 lines 15-18). Therefore since the scattering member is used to attach selective transmission/reflection part to the substrate than the selective transmission/reflection unit is considered directly on the substrate.

Akiyama fails to teach a front light unit on the outer surface of the first polarizer however, Okamoto teaches use of a front light unit (cover figure element 21) of light transmittable material to provide a dual sided display without increasing the size of the panel (see abstract). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply a front light unit of light transmittable material to enable a dual sided display without an increase in panel size. Regarding claim 15, an LCD display can be considered a communication device.

Regarding claim 2, Akiyama teaches the wherein a region where the front light unit is situated functions as a reflective mode to display a normally-white mode, and an

opposite region to the first display side functions as a transmissive mode to display a normally-black mode (see column 4 line 59 – column 5 line 11).

Regarding claims 4 and 30, Akiyama teaches the second polarizer has a second light transmission axis perpendicular to the first light transmission axis (see fig. 4).

Regarding claims 5 and 31, Akiyama teaches the selective reflection/transmission part includes a double brightness enhancement film (see column 8 lines 27-32).

Regarding claims 6, 19 and 32, Akiyama teaches the device according to claim 1, wherein the liquid crystal layer includes a twisted nematic (TN) mode (column 2 line 60).

Regarding claims 8 and 34, Akiyama teaches the second electrode is formed on an entire surface of the second electrode (element 5)

Regarding claims 20 and 21, the reference shows a polarizer therefore, the light passing through will pass through first polarizer and become a first polarized light and also pass through the liquid crystal layer and become a second polarized light.

Regarding claim 22-25, the limitation of the second polarized light being perpendicular to the first is entirely dependent on the current orientation state of the liquid crystal layer at the time the light passes through thus is a product-by-process limitation. Product by process limitations only limit a claim to the structure required to perform the process however since it relies on an arbitrary orientation of the liquid crystal layer at a point all the structural limitations are considered met. Furthermore the

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limitations of claims 23 and 24 are also met as the reference as cited teach a retarder and selective reflective/ transmissive part found at the same positions.

Regarding claim 26, the reference teaches the polarization axes crossing (see claim 4 rejection) therefore first linearly polarized light will be blocked by the second polarizer.

Regarding claims 41 and 42, the reference teaches the device used for a PDA which inherently has a input device adjacent to the display / polarizer (column 2 lines 8-15). The limitation of including a keypad for inputting numbers or letters is purely dependent on how the device is programmed and therefore a product by process limitation.

Claims 7, 9, 33 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama in view of Okamoto 2002357825 and further in view of Hirata 20020047958.

Regarding claims 7, 9, 33 and 35-37, Akiyama and Okamoto teach all the limitations of claims 7 and 9 except a TFT transistor between the first substrate and first transparent electrode and a color filter on the second substrate and the second transparent electrode however, Hirata shows these features as a conventional structure for liquid crystal displays (0054). Conventionality has associative benefits such as robustness, and lower costs to implementation. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to apply the conventional LCD structure to gain benefits such as robustness and lower costs to implementation. While Hirata does not disclose a dual sided LCD panel this reference is considered

pertinent as the structure of Akiyama's is no different from a conventional display when considering elements between the substrates.

Claims 10-11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama in view of Okamoto in view of Hirata and further in view of La Roche 4025161.

Regarding claims 10-11 and 17, the references fail to teach the limitation of placing a retardation film on an outer surface of the second polarizer, however La Roche teach placing a QWP on an outer surface of a polarizer to improve viewing in the presence of external polarization effects (see column 1 lines 50-68). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to add a quarter wave plate to the outer surface of the second polarizer to improve viewing in the presence of external polarization effects. Furthermore regarding claim 17 the reference teaches this display is most suitable in a PDA (see claim 41 and 42 rejection) which must include an input device

Claims 1, 15, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama US 6542208 in view of Okamoto 2002357825 and further in view of Faris 6801270 et al.

Regarding claims 1, 15, and 27, Akiyama teaches a dual display mode liquid crystal display device and method of forming, comprising: first and second substrates (fig. 5 elements 3 and 12) spaced apart from and facing each other; a first transparent electrode (4) on an inner surface of the first substrate; a second transparent electrode

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(5) on an inner surface of the second substrate; a liquid crystal layer (6) between the first and second transparent electrodes; a first polarizer on an outer surface of the first substrate, the first polarizer (10) having a first light transmission axis; a front light unit on an outer surface of the first polarizer; a selective reflection/transmission part (9) on an outer surface of the second substrate, the selective reflection/transmission part selectively reflecting linearly polarized light corresponding to the first light transmission axis; and a second polarizer on an outer surface of the selective reflection/transmission part (11). The reference also teaches the selective reflection/transmission part sandwiched by the second substrate and second polarizer.

Akiyama fails to teach a front light unit on the outer surface of the first polarizer however, Okamoto teaches use of a front light unit (cover figure element 21) of light transmittable material to provide a dual sided display without increasing the size of the panel (see abstract). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply a front light unit of light transmittable material to enable a dual sided display without an increase in panel size. Regarding claim 15, an LCD display can be considered a communication device.

Considering the limitation of the selective transmission/reflective portion directly on the outer surface of the second substrate explicitly bars the presence of any diffusive element Faris discloses that the addition of or omission of diffusers are art recognized equivalents as they are purely optional (see column 5 line 65- column 6 line 35). And the removal of such an element is not considered patentable over one that includes one.

Conclusion

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

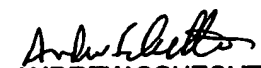
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Examiner
AU 2871


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PRIMARY EXAMINER